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Title: Apparatus and means for mounting a device for the presentation and preservation of bouquets of flowers.

The present invention involves an apparatus and a method for mounting a device for the presentation and preservation of bouquets of flowers as well as a device for the packaging and preservation of bouquets of flowers.

Patent EP 0828 446 describes a device for the presentation of bouquets comprising a collapsible support, several slats, a rolled-up connection around the slats, a watertight sheet, a primary fastener for the device, and a secondary fastener comprising a ribbon.

Patent EP 0881 167 reveals a receptacle for bouquets of flowers comprising a circular base element from which multiple elongated elements extend.

The purpose of the invention is the manufacture of a device for the quick presentation of a bouquet of flowers in the vertical position and preservation of this bouquet of flowers in the vertical position and the preservation of this bouquet by introducing water through an orifice located in the upper part of the device.

Another goal of the invention is to create an apparatus for forming a stable device for presenting all kinds of bouquets.

The present invention involves the quick mounting of a device that is delivered flat and which adapts to any bouquet of cut flowers as a support for storage or sale, by these different shapes with or at sale, by these different shapes with or without bottom, round, square, triangular or other.

This device and its bouquet once they are in shape, folded in all watertight sheets commonly used in the horticultural or florist milieu, allows a reserve of water to be contained. The weight of the water at its base ensures a perfect stability with a predetermined quantity of water for transport.

The principle of the apparatus according to the invention allows the manufacture of a device for the transport, from place of sale to destination, of a bouquet folded with the water

reserve contained in its packaging, while ensuring its preservation until the final customer, and all along the way without wilting.

According to the invention, the apparatus is designed for mounting a device for the presentation of individual bouquets of flowers, where this device comprises a base element which may or may not be equipped with a raised ridge all around its circumference, and a sheet which may or may not be watertight, placed under the base element that converges towards the center top of the device and is held in place by a fastener comprising a ribbon for holding the watertight sheet around the bouquet. The device comprises several movable draping fingers associated with a tightening cord for guiding the sheet around the base element. A support base is movable along a vertical axis for supporting the device and a guide means of predetermined shape is connected to the support base in order to guide all the draping fingers. An activating means is provided that shifts the support base and the guide means along the vertical axis and which simultaneously activates all the draping fingers guided by the guide means such that the tightening cord is tightened around the draped sheet.

The method of manufacturing a device for the presentation of individual bouquets of flowers in the invention comprises steps, which comprises:

positioning the sheet and the base element on the support base for supporting the device;

moving the support base towards the bottom along a vertical axis and a guide means of predetermined shape connected to the support base in order to prime the fold in the sheet;

guiding multiple movable pivoting draping fingers associated with a tightening cord for draping the sheet around the base element so as to further tighten the tightening cord around the draped sheet; and

holding the sheet around the bouquet with an fastener comprising, for example, a ribbon.

The present invention will be better understood by referring to the following figures:

Fig. 1 shows the completed device with its bouquet by an apparatus according to the invention.

Fig. 2 shows the mounting apparatus according to a preferred manner of embodiment of the invention.

Fig. 3 shows the manner of embodiment in Fig. 2 where a fold in the sheet is primed.

Fig. 4 shows the manner of embodiment in Fig. 1 where draping of the sheet is completed.

Fig. 5 shows a partial view from below of the manner of embodiment in Fig. 2.

Fig. 6 is a representation of the invention in Fig. 2 in the position in Fig. 3.

Fig. 7 is a representation of the invention in an intermediate position.

Fig. 8 is a representation of the invention in the position in Fig. 4.

Fig. 9 is an assembly view of the manner of embodiment in Fig. 2.

Figs. 10 to 15 show the successive stages of the method of assembling the invention.

Fig. 16 is a representation of the system for filling the device according to the invention.

Figs. 17 to 19 show the draping device of the invention used mechanically on an automated carousel.

Device (10) in Fig. 1 for the presentation and preservation of individual bouquets of flowers allow the flower(s) to be held at the level of the central axis of the device comprises a base element (2) of any shape, of dimensions which may or may not be adjustable so that they adapt to the size of the bouquets, and which may or may not have a raised ridge (4) all around the circumference which serves to hold the bouquet in the vertical position, where this bouquet may be connected by a primary fastener comprising a connection. This device comprises, moreover, a sheet (5) which may or may not be watertight and which surrounds the base element (2), and which converges towards the center top of device (10) and held by an fastener (9) comprising a ribbon (7) for holding sheet (5) around the bouquet, all of which is arranged to allow the introduction of water through an orifice (6) located in the upper part of the device. Base element (2) of the support can be circular, square, rectangular, triangular, polygonal, or trapezoidal in shape, cruciform, tripodal and tripodal with each foot base connected by an arc-shaped element to the adjacent bases. Base element (2) can have one or more waves and one or more hollows for holding the ends of the flower stems in place.

Base element (2) can be made of a conical receptacle (2) with an orifice (6) located in the upper part.

The invention according to the principle of folding the standard bouquet, comprises a base element (2) and a sheet (5), which may or may not be watertight when lifted, facilitates the shaping of the sheet. According to the invention, the device for the presentation of bouquets can also be mounted without such a base element (2) with a watertight sheet (5) alone.

As can be seen in Figs. 2 through 4, the apparatus for mounting the device for the presentation of individual bouquets of flowers comprises several movable pivoting draping fingers (15) associated with a tightening cord (16) for guiding sheet (5) around the base element (2). The number of draping fingers (15) can vary in order to form a device (10) of predefined shape (cone, pyramid, etc.). The tightening cord (16) can be made of metal, plastic or any other flexible material.

A support base (20) that is movable along a vertical axis supports device (10). A guide means (21) of predetermined shape, for example conical, is connected to the support base (2) in order to guide all the draping fingers (15) and give a predefined shape to device (10).

A means of activating (30), for example a manual lever (30), is used to shift support base (20) and guide means (21) along the vertical axis, and thus cause all the draping fingers (15) to pivot, while being guided by guide means (21) in such a way as to tighten the tightening cord (16) around sheet (5).

Moreover, a table (25) equipped with an orifice (26) allows the passage of sheet (5) and of base element (2) so as to prime the fold through orifice (26) in table (25).

Lever (30) is mounted so that it pivots and is connected to an axial connection element (34) that moves along the vertical axis so that it pivots draping fingers (15) using pivots (17), where these same fingers (15) are also connected to a fixed support element (36).

Movable axial element (34) rises and descends by activating lever (30) and fingers (15), which pivot around fixed support element (36). By activating lever (30), according to Figs. 3 and 4, the support base (20) descends to continue draping (21) and the conical guide means (21) descends so that it guides the pivoting of draping fingers (15) and tightens the cord (16) around the sheet (5).

As can be seen in Fig. 5, the ends of cord (16) are free and cord (16) slides in openings (17) formed in each of the fingers (15) in order to allow tightening of device (10).

In the preferred manner of embodiment, openings (17) are formed horizontally in the ends of the fingers (15) and are of a diameter slightly larger than that of the cord (16) in order to allow it to slide freely. The ends of the fingers (15) are arranged so that the cord (16) forms a circle. The radius of this circle decreases by pivoting the fingers (15) due to activation of the lever (30), allowing cord (16) to slide into openings (17) in the fingers (15).

The lever (30) comprises a stoppage system (33) for keeping lever (30) in the horizontal position when draping has been completed and allowing fastener (9) of sheet (5) around the bouquet. Once attachment has been completed, the apparatus frees the device (10), which rises due to action of lever (30).

The guide means (21) can be generally conical in shape so that the draping fingers (15) are guided by the guide means (21) as the support base (20) and the guide means (21) are being simultaneously displaced and allowing a generally conical conjugated device (10) to be formed.

Bases (2) following the same principle can be considered, and may be square, triangular, rectangular, etc. in shape in order to obtain a pyramidal device.

The apparatus in the invention can also comprise a source of water in combination with a pressure regulator and a solenoid valve controlled by an integral timer to fill the device with a predefined volume of water (see Fig. 9 and 16).

As the device is filled with water by the combination of a pressure regulator and a solenoid valve controlled by an integral timer, the operator tentatively defines a volume of water defined by:

$$\frac{\text{Pressure}}{\text{Opening time}} = \text{constant volume of water}$$

The filling system can be combined with a preserving product mixer for bouquets of flowers.

Attaching (9) the draped sheet (5) can be done in current operation time as the water is filling, either manually or by any automatic system known on the market or developed to specification.

Once filling is done and attachment completed, the apparatus frees the bouquet and its water reserve manually by lifting the lever or mechanically by a button. All operations can be steered by an automaton. In this version the bouquet with or without support (2) will be brought to the station automatically.

The device in the invention has two functions

- Draping of a sheet (5) which may or may not be watertight around just one bouquet which may or may not be equipped with a support (2), primary complete commonly called a water reserve bouquet.
- Adjustment and filling with water of a defined volume.

According to the method of the invention, draping is combined with multiple fingers (15) following the descent, and the cord tightening sheet (5) with the system of preventing the sheet from being stuck, where these two combinations ensure a perfect "draping".

The method comprises steps which comprise:

positioning sheet (5) and base element (2) on the support base (20) for supporting the device,

priming the fold in sheet (5) for passing sheet (5) and base element (2) through an orifice (26) in a support table (25),

moving support base (20) downwards along a vertical axis and the guide means (21) connected to the support base (20) in order to continue folding sheet (5);

guiding all the pivoting movable draping fingers (15) associated with tightening cord (16) in order to drape sheet (5) around base element (2) so as to tighten tightening cord (16) around draped sheet (5), and

holding the sheet (5) around the bouquet by the fastener (9) comprising a ribbon (7).

By activating the lever (30), the lowering of support base (20) and guide means (21) is simultaneous with the pivoting of draping fingers (15) which are guided by guide means (21) so as to ensure a perfect shape of device (10).

Successive stages of the assembly
10 through 15.

method of the invention are illustrated in Figs.

Fig. 10 illustrates positioning of a sheet (5) of paper on table (25) of the apparatus.

Fig. 11 illustrates priming of the folding by orifice (26) in the table by positioning the bouquet with or without support (2) and by driving everything through orifice (26).

Figs. 12 and 13 illustrate the activating of the lever (30) and draping base element (2) with sheet (5). Simultaneous driving and mounting the lever (mechanical or manual).

Fig. 14 illustrates filling with water through upper orifice (6) of the device in concurrent operation time by attaching draped sheet (5) and blocking the system once draping has been completed.

Fig. 15 shows withdrawal of the device once filling is done and attachment completed, the machine frees the bouquet and its water reserve manually by lifting the lever or mechanically with a button.

Figs. 17 through 19 show the draping device in the invention used mechanically on an automated carousel. In particular, as shown in Figs. 17 through 19, a series of draping devices of the invention (for example a series of three devices) can be arranged on a carousel that turns so as to automate the manufacturing process of the device for presentation of individual bouquets of flowers. It goes without saying that the draping device in the invention can therefore be used either manually, or mechanically on a carousel of this type.